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U.S. Patent Application Serial No. 10/528,448
Response to OA dated November 8, 2007

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-2 (Canceled)

Claim 3 (Currently Amended): A dial module comprising:

a dial having a design part;

a sheet-shaped light source for illuminating the design part; and

a flexible printed circuit fixed to a back surface of the light source,

wherein the dial is ~~formed~~ printed directly on a front surface of the sheet-shaped light source.

Claim 4 (Currently Amended): The dial module according to claim 3, wherein the sheet-shaped light source and flexible printed circuit are formed in substantially the same shape.

Claim 5 (Currently Amended): A dial module comprising:

a sheet-shaped dial having a design part on a front surface of the dial; and

a sheet-shaped light source fixed to a back surface of the dial for illuminating the design part,

wherein

the sheet-shaped light source is provided with a flexible printed circuit ~~formed~~ printed directly on a back surface of the sheet-shaped light source.

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Claim 6 (Currently Amended): The dial module according to claim 5, wherein the dial and the sheet-shaped light source are formed in substantially the same shape.

Claim 7 (Currently Amended): A dial module comprising a sheet-shaped light source, wherein a dial having a design part is ~~formed~~ printed directly on a front surface of the sheet-shaped light source while a flexible printed circuit is ~~formed~~ printed directly on a back surface of the sheet-shaped light source.

Claim 8 (Previously Presented): The dial module as claimed in claim 3, further comprising a connecting terminal part for attaching an additional component thereto.

Claim 9 (Currently Amended): The dial module as claimed in claim 3, wherein the sheet-shaped light source is a sheet-shaped electroluminescent light source.

Claim 10 (Withdrawn): A process for manufacturing a dial module comprising:
a first step in which a flexible printed circuit is put and sealed on a back surface of a sheet-shaped light source with an adhesive; and
a second step in which a dial having a design part is printed on a front surface of the light source.

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Claim 11 (Withdrawn): The process for manufacturing a dial module according to claim 10, wherein the light source is formed by providing a transparent electrically conductive film with a luminous layer, insulating layer and back surface electrode, and the flexible printed circuit is formed by providing a copper foil film with a circuit with etching followed by an insulation processing.

Claim 12 (Withdrawn): A process for manufacturing a dial module comprising:
a first step in which a circuit is formed on a back surface of a sheet-shaped light source by printing an electrically conductive material on the back surface; and
a second step in which a dial having a design part is printed on a front surface of the light source.

Claim 13 (Withdrawn): The process for manufacturing a dial module according to claim 12, further comprising a third step in which an insulation processing is applied on a part where the circuit is formed.

Claim 14 (Withdrawn): The process for manufacturing a dial module as claimed in any one of claims 10-13, wherein the light source is a sheet-shaped electroluminescent light source.

Claim 15 (Previously Presented): A meter comprising:
the dial module as claimed in claim 3 further comprising;

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a frame board arranged in front of the dial of the dial module;
a front glass arranged in front of the frame board; and
a casing arranged in the rear of the dial module for fixing the dial module between the frame board and the casing.

Claim 16 (Withdrawn): A light-emitting diode display element for supplying electric power to a light-emitting element, comprising a lead terminal for fixing the light-emitting element to an opposite attaching member situated in the same direction as that of emission from the light-emitting element.

Claim 17 (Withdrawn): A light-emitting diode display element comprising:
a light-emitting element;
an optically transparent member for sealing the light-emitting element, the optically transparent member including a reflecting surface on the side of emission of the light-emitting element and an emitting surface in the rear of the light-emitting element;
a reflecting mirror provided on the reflecting surface, for reflecting the emission from the light-emitting element and guiding out the emission from the emitting surface; and
a lead terminal connected to the light-emitting element, the lead terminal protruding from a side of the optically transparent member and including an end substantially flush with the emitting surface.

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Claim 18 (Withdrawn): A meter comprising:

- the dial module as claimed in any one of claims 1-7;
- a first opening formed on a part of the sheet-shaped light source of the dial module;
- a second opening formed on a part of the flexible printed circuit of the dial module so as to be lined up with the first opening;
- the light-emitting diode display element according to claim 16 or 17, in which the lead terminal is connected to the flexible printed circuit and the emission from the light-emitting element is guided to the second opening;
- a design formed on the sheet-shaped dial and illuminated with the emission from the light-emitting element through the first and second openings;
- a frame board arranged in front of the dial of the dial module;
- a front glass arranged in front of the frame board; and
- a casing arranged in the rear of the dial module for fixing the dial module between the frame board and the casing.

Claim 19 (Withdrawn): A display module comprising:

- a printed board;
- a display element mounted on the printed board;
- a driver element mounted on the printed board for driving the display element; and
- a connecting terminal formed on the printed board.

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Claim 20 (Withdrawn): The display module according to claim 19, wherein the display element is a liquid crystal display element.

Claim 21 (Withdrawn): A meter comprising:

the dial module as claimed in any one of claims 1 - 7;

a first notch formed on a part of the sheet-shaped dial of the dial module;

a second notch formed on a part of the sheet-shaped light source of the dial module so as to be lined up with the first notch;

a display window formed on a part of the flexible printed circuit of the dial module so as to be situated in the rear of the first and second notches;

the display module according to claim 19 or 20 mounted on the flexible printed circuit so as to be situated at the display window;

a frame board arranged in front of the dial of the dial module;

a front glass arranged in front of the frame board; and

a casing arranged in the rear of the dial module for fixing the dial module between the frame board and the casing.

Claim 22 (Withdrawn): A movement module comprising:

a printed board;

a stepper motor mounted on the printed board;

a driver element mounted on the printed board for driving the stepper motor;

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and a connecting terminal formed on the printed board.

Claim 23 (Withdrawn): A meter comprising:

the dial module as claimed in any one of claims 1 - 7;

the movement module according to claim 22 mounted on the flexible printed circuit of the dial module so as to be situated at the display window;

a frame board arranged in front of the dial of the dial module;

a front glass arranged in front of the frame board; and

a casing arranged in the rear of the dial module for fixing the dial module between the frame board and the casing.

Claim 24 (Withdrawn): A connector module comprising:

a housing including first and second tube parts;

a first connecting terminal penetrating through a bottom of the first tube part for connecting to an outside connector inside the first tube part, the first connecting terminal being mounted so that a part of the first connecting terminal is situated inside the first tube part while another part of the first connecting terminal is exposed to the outside of the first tube part;

a second connecting terminal penetrating through a bottom of the second tube part, the second connecting terminal being mounted so that a part of the second connecting terminal is situated inside the second tube part while another part of the second connecting terminal is exposed to the outside of the second tube part; and

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a circuit board received in the second tube part, the circuit board being detachably connected to the second connecting terminal.

Claim 25 (Withdrawn): The connector module according to claim 24, wherein the part of the second connecting terminal, which part is situated inside the second tube part, is a resilient contact.

Claim 26 (Withdrawn): The connector module according to claim 24 or 25 further comprising a cover for closing an opening of the second tube part.

Claim 27 (Withdrawn): A meter comprising:
the dial module as claimed in any one of claims 1-7;
the connector module as claimed in any one of claims 24 - 25, in which each of the other parts of the first and second connecting terminals exposed to the outside of the tube part is connected to the flexible printed circuit of the dial module;

a frame board arranged in front of the dial of the dial module;

a front glass arranged in front of the frame board;

and a casing arranged in the rear of the dial module for fixing the dial module between the frame board and the casing.